

Music & Sleep Quality Research: An Interdisciplinary Approach

BACKGROUND & OBJECTIVES

- adolescent sleeping issues
- music effects on adolescent's sleeping patterns
- Research goal: personal music highlights

1. BACKGROUND & RESEARCH GAP

- Adolescents frequently experience insufficient sleep (<8 hours) due to academic/social demands
- Music shows promise as a non-pharmacological sleep intervention
- Key gap: Lack of evidence-based, personalised music recommendations for sleep improvement.

Research Objective

- Identify which acoustic features (Tempo, harmony, spectral characteristics) most influence sleep onset and quality
- Develop a personalized music recommendation framework based on individual sleep patterns
- Bridge music science, neuroscience, and data science methodologies.



Current Progress

- Literature review completed (Galván, 2020; sleep-music interaction studies)
- research protocol designed and documented
- Academic website established: taiguoguo.github.io/Taiguoguo-Research/
- Ethical considerations addressed

Expected outcomes & Impact

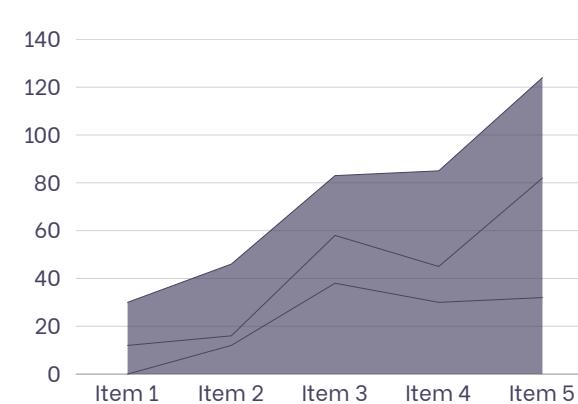
- Theoretical: Framework linking acoustic properties to sleep neurophysiology
- Practical: Open-source pipeline for music-sleep analysis
- Clinical: Basis for personalized sleep intervention design
- Educational: Demonstration of interdisciplinary research integration

References

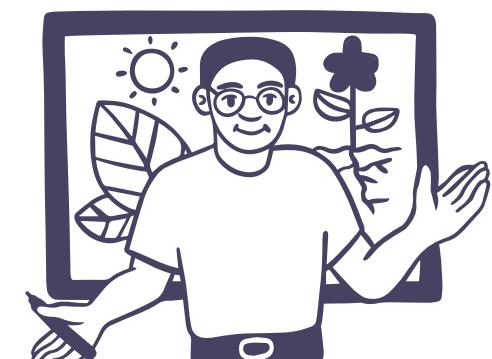
- Galván, A. (2020). The need for sleep in the adolescent brain. *Trends in Cognitive Sciences*, 24(1), 79–89.
- Additional literature on music therapy and sleep neuroscience under review

Methodology (3- Field Approach)

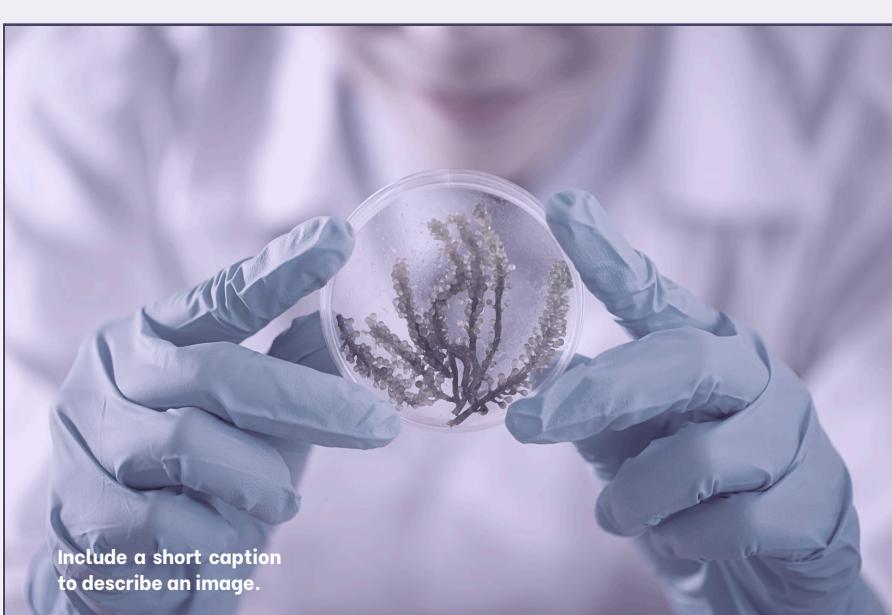
Music Analysis - Sleep Science - Data Science
Music domain: Feature extraction using Librosa(Python) - tempo, MFCCs,spectral contrast
Neuroscience Domain:
Polysomnography(EEG,EOG,EMG)+actigraphy+heart rate monitoring
Data Science Domain: Statistical modeling + Machine learning to identify music-sleep correlations



Use graphs to show visualization of your data's analysis.



Illustrations are also great aids to help your research poster.



Contact & Further information

- Academic website: <https://taiguoguo.github.io/Taiguoguo-Research/>
- GitHub repository: <https://github.com/Taiguoguo/Taiguoguo-Research>
- This project represents ongoing work in interdisciplinary methods development.

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Charts

